I. Call To Order / Welcome
The meeting was called to order at 12:00 on October 22, 2014 in Room 2502. Dr. Will Lynch presided. The Department welcomed guest Dr. Jane Wong, CST Interim Dean.

II. Approval of Minutes
The Minutes from September 17, 2014 were approved as presented.

III. New Business
A. Faculty Senate Update
Dr. Padgett shared the following regarding the last Faculty Senate Meeting:
1. Dr. Ward informed the Faculty Senate that overall the enrollment numbers were close to flat, therefore, across the USG everyone has been asked to hold back 3% of the monies. However, in spite of the enrollment numbers being shy of falling flat, retention is still up.

2. There is now a link in the President’s website where a current committee membership list is posted as previously requested for informational purposes.

3. Dean Wong re-sent an e-mail on October 21/2014 reminding everyone of the Faculty Leadership Development Opportunity. While a deadline was not clearly specified the first time, she has set Monday 10/27/2014 at noon as the deadline to submit nominations.

4. The new SmartEvals software (replacing e-FACE evaluations) has a problem. It turns out that signed and unsigned comments cannot be separated one from the other. There will be further discussions to come up with the solution.

5. Some people have expressed concern on whether or not the upcoming Campus Climate Survey is anonymous.

6. The SGA asked the Faculty Senate to endorse the expansion of the tobacco free campus and the Faculty Senate did so.

7. All resolution bills passed with the exception of e-degree granting a certificate in English as a second language. Discussions related to e-core will continue.

B. Physics Curriculum Items
This item was held back last month for a closer and more detailed discussion with some of the faculty within the department regarding contact hours versus lab hours and the issue was resolved.
to everyone’s satisfaction. The department voted unanimously to accept all the changes, which included course creation of the Mechatronics Track and the Health Physics Track. For more details, please refer to **Attachment #1**.

C. Biochemistry Curriculum
This item was held back last month as well but we are now prepared to vote on it. We will vote separately on the addition of courses and the creation of a Minor in Biochemistry. **Attachment #2** is an addition of Biochemical Research, which is parallel to Chemistry Research and Physics Research courses. The department voted unanimously to accept the addition of courses BCHM 2900, BCHM 3900 and BCHM 4991.

The creation of a Minor in Biochemistry came about after students started to inquiry regarding the same. After consulting with different curriculum groups we the department decided that creating the minor was the appropriate way to go, especially to benefit Biology students. The department voted unanimously as well to create the Minor in Biochemistry. Please refer to **Attachment #2** for more details.

IV. Old Business
A. Search Up-dates for 2015
   i. Organic Chemistry Tenure Track
   The searches for both Organic Chemistry tenure track and the Biochemistry tenure track are up and running simultaneously. The review date for the Organic search will begin the first part of November 2014 with visits to campus starting sometime in January 2015. Currently we have 34 applicants.

   ii. Biochemistry Tenure Track
The Biochemistry tenure track search has 15 applicants. The target dates for interviews will begin running in the middle of January 2015.

B. Departmental Workload Policy
Undergraduate research is an integral / high impact activity within this department and this is reflected in the CST Workload Document, which is attached as **Appendix A**. The CST Workload Policy Document will be the document the department will use as a guideline to obtain course release for undergraduate research credit. In order to earn this, there has to be an outcome that is related to undergraduate research. For more details, please refer to **Attachment #3**.

C. Department T & P Policies
This document was not formally approved, therefore, the faculty voted to formally approve it. There were a number of cosmetic changes but the only substantial change was the addition of a good bit of language to deal with the lecturer and senior lecturer that is consistent with the Faculty Handbook and with the CST Policy. There was a very friendly amendment located in page three under Category IV where the title appears in bold letters, which needs to appear in regular text underlined instead. The faculty voted unanimously to formally adopt the document. For more details, please refer to **Attachment #4**.

V. Visitor – Dr. Jane Wong, Interim Dean of the College of Science and Technology
Dr. Lynch asked Dean Wong to come up front to address the faculty. Immediately Dean Wong stated that the reason for her visit was to learn from the faculty about the challenges, successes and any other issue they would consider sharing with her. The following were some of the issues mentioned:
Courseload/Overload
Dr. Lynch shared that the biggest issue that the department is currently having is meeting the
courseload from the administrative stand point, which resulted from the last minute resignation
of one of the faculty members on the chemistry side and the loss of the PHYS temporary line.

Congratulations on Supplemental Instruction
Next, Dean Wong congratulated the department on the Supplemental Instruction grant that was
funded. One of the challenges that faculty is facing regarding Supplemental Instruction is that less
than 5% of students is utilizing it.

Delay from Students in taking PHYS
Ms. Mullenax inquired about what can be done regarding students who wait to take PHYS 1111K
and 1112K during their last year instead of earlier, which brings as a result students failing the
courses and not been able to graduate. Dr. Lynch added that the department needs to be prepared
to immediately recognize any curriculum item from another department that requires our courses
that are not pre-req to one of the other departments courses. This results in senior level students
taking our introductory courses. For example, our department does not require a single course
outside our program that is not required as pre-requisite inside our curriculum. He added that this
is a large registration problem for our students and programs.

E-core
The subject of e-core was brought up by Dr. Secrest. Dean Wong responded that the matter has
been previously discussed in the Department Heads' Meeting and it was again in the agenda to
continue with part 2 of the discussion. She continued saying that the consensus is one of concern,
mainly surrounding the issue of the quality of education to Armstrong students.

Dean Wong added that Dr. Ward has asked three questions regarding E-core and they are:
1- Do we join and get some of the financial reward?
2- Regardless of if we join or not, do we limit traditional age students in the dorms?
3- What impact will this have in our in-house online courses?

Dr. Wong, also, said that there is a college that is planning to oppose E-core, so the question is, do
we join them on their petition? A financial analysis needs to be done in order to make a more
educated and accurate decision regarding the matter. Unfortunately, this cannot be done simply
because there is not data available. One thing to bear in mind is that E-core has been defeated twice
before.

Dean Wong closed with thanking the faculty for allowing her to come and commending the
department on the eleven Research and Scholarship Internal Grant Proposal applications that she
signed, which would generate $22,000 to the department if funded, but the most important thing
would be the number of students that would benefit from being mentored.

VI. Announcements
10/23/2014 - Effingham High School will be visiting the department for Mole Day.

11/15/2014 - Bell School for the Visually Impaired will be visiting the department for a morning
Demonstration.

11/19/2014 - Coastal Georgia Section Meeting at Moon River. Dr. Wallace will be the guest
Speaker. The title of the talk is The Chemistry of Thomas Edison.
The Coastal Georgia Section has won the bid to host SERMACS in 2019.

Adjournment – The meeting was adjourned at 1:00pm.

cc: Dr. Jane Wong, Interim Dean, College of Science and Technology
    Dr. Brent Feske, Interim Assistant Dean, College of Science and Technology
Attachment #1

Physics Curriculum Items

1. Modify the following course:

PHYS 3120 DIGITAL ELECTRONICS DIGITAL ELECTRONICS AND MICROCONTROLLERS (4-2-3)
Prerequisite: PHYS 2212K (minimum grade of C) or both MATH 1161 and PHYS 1112K (minimum grade of C)
Introduction to discrete components and integrated circuits. Hands-on lab experience in constructing and investigating an array of digital circuits that are directly applicable in instrumentation. Digital circuits, analysis of logic signals, microcontroller programming and interfacing with applications to physical systems.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture-Lab
Effective Term: Fall 2015

Rationale: Given the rapid evolution of digital technology, the Digital Electronics course must be updated to reflect the current state of the art. The extreme increase in capabilities and decrease in cost that has transformed the personal computer industry has had the same effect on the microcontroller industry. As a result, many problems that would previously have required a handful of integrated circuits can now be addressed with a single microcontroller and several lines of code. The lab and lecture hours are being adjusted to reduce the number of lab contact hours and increase the number of lecture contact hours.

2. Create the following courses for the proposed Robotics and Mechatronics Track:

PHYS 3170 SENSOR DEVELOPMENT AND DATA ANALYSIS (2-2-3)
Prerequisite: PHYS 2212K (minimum grade of C) or both MATH 1161 and PHYS 1112K (minimum grade of C)
Design and construction of a variety of sensors for physical quantities. Implementation, data collection, and analysis of sensor output.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture-Lab
Effective Term: Fall 2015

Rationale: The ubiquity of computers and embedded systems in modern life illustrates the importance of the interaction between the physical and virtual worlds. This course will discuss the principles behind that interaction and focus on ways to develop sensors for a variety of stimuli, as well as the analysis and interpretation of the data collected.
PHYS 4200  ANALYSIS AND SYNTHESIS OF MECHATRONIC SYSTEMS  (2-2-3)
Prerequisite:  PHYS 3170 (minimum grade of C) and ENGR 1371 or CSCI 1301 (minimum grade of C)
Students will design and construct complete systems involving sensors, algorithms, and physical action on the environment. Hands-on lab experience through applications in experimental physics. Includes a variety of oral and written assignments. Physics faculty involved in assessments.

CURCAT:
Major Department:  Chemistry and Physics
Can course be repeated for additional credit:  No
Maximum Number of Credit Hours:  3
Grading Mode:  Normal
Instruction Type:  Lecture-Lab
Effective  Term:  Fall 2015

Rationale: The capstone course for students in the Mechatronics track. This will represent the synthesis of previous coursework; sensors, microcontrollers, and actuators will be combined into a unified device built to accomplish a particular task.

PHYS 3370  HUMAN COMPUTER INTERACTION  (3-0–3)
Prerequisite: CSCI 1301 or ITEC 1310 or ENGR 1371
Paradigms in user interface design and related human factors. Topics include: user-system compatibility analysis, techniques for user interface design, methods for interface analysis, multimodal interaction and interaction analysis.

Rationale: A key component in the construction of systems that collect data, analyze it, and act on the results is the way the system interfaces with its human programmer or operator. This course will involve haptic devices and their use to provide another channel for the bidirectional flow of information between human and computer.

CURCAT:
Major Department:  Chemistry and Physics
Can course be repeated for additional credit:  No
Maximum Number of Credit Hours:  3
Grading Mode:  Normal
Instruction Type:  Lecture
Equivalent Course:  CSCI 3370
Effective  Term:  Fall 2015

PHYS 2030  INTRODUCTION TO COMPUTER ENGINEERING  (3-0-3)
Prerequisite: CSCI 1060 or CSCI 1301 or ENGR 1371 or CSCI 1371
Computer systems and digital design principles. Architectural concepts, software, Boolean algebra, number systems, combinational datapath elements, sequential logic, storage elements. Design of DRAM control and I/O bus.

Rationale: The design and development of computer hardware allows the students to move beyond prepackaged general purpose control devices and begin to create their own specialized circuitry.

CURCAT:
PHYS 2031 DIGITAL DESIGN LABORATORY (1-3-2)
Prerequisite: ENGR 2030 or PHYS 2030 (minimum grade of C)
Design and implementation of digital systems, including a team design project. CAD tools, project design methodologies, logic synthesis, and assembly language programming.

Rationale: The design of special-purpose circuitry using FPGA (Field Programmable Gate Array) devices is an invaluable aid in finding solutions to problems involving sensor management and control. This lab will show students how to use the FPGA to combine the flexibility of software with the high performance of special-purpose integrated circuits.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 2
Grading Mode: Normal
Instruction Type: Lecture-Lab
Equivalent Course: ENGR 2031
Effective Term: Fall 2015

PHYS 2035 PROGRAMMING FOR HARDWARE/SOFTWARE SYSTEMS (3-3-4)
Prerequisite: ENGR 2030 or PHYS 2030 (minimum grade of C)
Description: Programming techniques for hardware and software systems including creation of complex execution and storage mechanisms based on instruction set architecture and software design including programming languages and operating systems. Students will apply and develop these concepts through programming design projects.

Rationale: Most programming courses focus on programs to be executed by personal computers; the microcontroller and embedded-device environments are quite different in terms of chip capabilities, capacities, and support circuitry. This course will move beyond standard PC programming and investigate these other areas.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 4
Grading Mode: Normal
Instruction Type: Lecture-Lab
Equivalent Course: ENGR 2035
Effective Term: Fall 2015

3. Create the following new courses for the proposed Health Physics Track:

PHYS 3601 INTRODUCTION TO RADIATION SCIENCES I (3-0-3)
Prerequisite: PHYS 3801K (minimum grade of C)
Fundamentals about atomic physics and radiation: atomic structure, the nucleus, nuclear radiation, radioactive decays and interactions of heavy charged particles with matter.

Rationale: This course lays the foundation for the health physics track. Health physicists must have an understanding of radiation and its interactions with matter and how to detect radiation in the environment.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Equivalent Course: None
Effective Term: Fall 2015

PHYS 3602 INTRODUCTION TO RADIATION SCIENCE II (3-0-3)
Prerequisite: PHYS 3601 (minimum grade of C)
Fundamentals about atomic physics and radiation: interactions of electrons with matter, interactions of photons with matter, neutrons, fission, and methods of radiation detection.

Rationale: This course continues to lay the foundation for the health physics track. Health physicists must have an understanding of radiation and its interactions with matter and how to detect radiation in the environment.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Effective Term: Fall 2015

PHYS 3403 Biophysics (3-0-3)
Prerequisite: PHYS 3801K (minimum grade of C)
A survey of physics applications to biology, including the thermodynamics of life, forces affecting conformation in biological molecules, physics of membranes, and spectroscopy.

Rationale: The study of the intersection of physics and biology will give the health physics track major a deeper understanding of biological systems as they relate to physics. This course will be cross-listed by CHEM program as being equivalent to BCHM 3403.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Equivalent Course: BCHM 3403
Effective Term: Fall 2015
PHYS 3650  RADIATION EXPOSURE IN THE WORKPLACE AND IN THE ENVIRONMENT (3-0-3)
Prerequisite: PHYS 3801K (minimum grade of C)
A survey of how radiation is used in a variety of contexts how it is detected and measured (i.e. dosimetry and radiation detectors) and the effect on people and the environment.

Rationale: Health physicists must have knowledge of how radiation is used for the benefit of people in various sectors of society.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Equivalent Course: None
Effective Term: Fall 2015

PHYS 3660  MEDICAL IMAGING (3-0-3)
Prerequisite: PHYS 3801K (minimum grade of C)
A survey of how radiation is used in a variety of medical imaging techniques (such as CAT, MRI, and PET).

Rationale: Health physicists must have knowledge of medical imaging techniques.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Equivalent Course: None
Effective Term: Fall 2015

4. Create tracks for the program of study for the B.S. of Science in Applied Physics as follows:

PROGRAM FOR THE DEGREE OF BACHELOR OF SCIENCE IN APPLIED PHYSICS

Track 1: Applied Physics
A. General Requirements
Core Areas A, B, C, D, IIA, and E ................................................................. 42 hours
Applied physics majors are required to take MATH 1113 in core area A and MATH 1161 in core area D
Area F ........................................................................................................... 18 hours
PHYS 2211K, 2212K Principles of Physics I, II (unless taken to satisfy core area D, in which case replace with 8 hours of lower division electives)
MATH 2072 Calculus II
MATH 2083 Calculus III
One hour excess for MATH 1161 from Core Area D
1 hour excess from PHYS 1000 or from any science or math course
Physical Education .......................................................................................... 3 hours
### First-Year Seminar

- 1 hour

### B. Major Field Courses

- **30 hours**

  Choose one of the following courses:
  - PHYS 3100 Electrical Circuit Analysis or ENGR 3100 Circuit Analysis
  - PHYS 3120 Digital Electronics
  - PHYS 3300 Thermodynamics or PHYS 3400 Chemical Thermodynamics
  - PHYS 3801K Modern Physics
  - PHYS 3802 Introduction to Quantum Mechanics
  - PHYS 4120 Scientific Measurement with Digital Interfacing
  - PHYS 4170 Advanced Mechanics

  Choose twelve semester hours from:
  - PHYS 2900 Introduction to Research in Physics
  - PHYS 3100 Electrical Circuit Analysis or ENGR 3100 Circuit Analysis (if not previously counted above)
  - PHYS 3120 Digital Electronics (if not previously counted above)
  - PHYS 3142 Computational Physics
  - PHYS 3200 Mathematical Methods for Physicists
  - PHYS 3220 Mechanics of Deformable Bodies
  - PHYS 3230 Fluid Mechanics
  - PHYS 3312 Electromagnetism
  - PHYS 3500 Diffraction and Crystallography
  - PHYS 3700K Optics
  - PHYS 4800 Pedagogy and Supplemental Instruction in Physics (maximum of 3 hours can be used in this section)
  - PHYS 4900 Independent Study in Physics
  - PHYS 4950 Special Topics in Physics
  - PHYS 4960 Physics Internship
  - PHYS 4991 Advanced Research in Physics

### C. Related Field Courses

- **23 hours**

  - CHEM 1211 Principles of Chemistry I (and lab)
  - CHEM 1212 Principles of Chemistry II (and lab)
  - CSCI 1301 Introduction to Programming Principles or ENGR 1371 Computing for Engineers
  - MATH 2160 Linear Algebra
  - MATH 3411 Differential Equations
  - A three semester-hour upper-division math course (3000 or 4000 level, excluding MATH 3411, 3900, 3911, 3912, 3932, 4000, 4750, 4900, 4910, 4961, 4962, 4963, 5412U, 5600U, 5700U, 5900U, 5911U)
  - Three semester hours of related field electives approved by the physics faculty

### D. Electives

- **7 hours**

  - Upper-division courses (6 semester hours)
  - Free elective (1 semester hour)

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**Total Semester Hours**: 124 hours

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**E. Exit Exam**

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**Track II: Robotics and Mechatronics**

**A. General Requirements**

- **Core Areas A, B, C, D,IA, and E** ................................................................. **42 hours**
  - Applied physics majors are required to take MATH 1113 in core area A and MATH 1161 in core area D
- **Area F** ............................................................................................................. **18 hours**
  - PHYS 2211K, 2212K Principles of Physics I, II (unless taken to satisfy core area D, in which case replace with 8 hours of lower division electives)
  - MATH 2072 Calculus II
  - MATH 2160
  - CSCI 1301 or ENGR 1371
- **Physical Education** ..................................................................................... **3 hours**
- **First-Year Seminar** .................................................................................. **1 hour**

**B. Major Field Courses** ................................................................................ **30 hours**

- PHYS 2030 Introduction to Computer Engineering
- PHYS 2031 Digital Design Laboratory
- PHYS 2035 Programming for Hardware/Software Systems
- PHYS 3100 Electrical Circuit Analysis
PHYS 3120  Digital Electronics and Microcontrollers
PHYS 3142  Computational Physics
PHYS 3170  Sensor Development and Data Analysis
PHYS 3801K  Modern Physics
PHYS 4200  Analysis and Synthesis of Mechatronic Systems
PHYS 3370  Human Computer Interaction

C.  Related Field Courses .................................................................................. 23 hours
CHEM 1211 Principles of Chemistry I (and lab)
CHEM 1212 Principles of Chemistry II (and lab)
MATH 3411 Differential Equations
Twelve semester hours (nine hours of which must be upper division level) of related field electives approved by the physics faculty.

D.  Electives ................................................................................................. 7 hours
Upper-division courses (6 semester hours)
Free elective (1 semester hour)

Total Semester Hours ....................................................................................... 124 hours

Track III:  Health Physics

A.  General Requirements
Core Areas A, B, C, D,IA, and E ........................................................................ 42 hours
Applied physics majors are required to take MATH 1113 in core area A and MATH 1161 in core area D
Area F ............................................................................................................. 18 hours
PHYS 2211K, 2212K Principles of Physics I, II (unless taken to satisfy core area D, in which case replace with 8 hours of lower division electives)
MATH 2160 or STAT 3231
MATH 2072 Calculus II
CSCI 1301 Introduction to Programming Principles or ENGR 1371 Computing for Engineers

Physical Education ............................................................................................. 3 hours
First-Year Seminar ............................................................................................ 1 hour

B.  Major Field Courses ..................................................................................... 30 hours
PHYS 3100 Electrical Circuit Analysis or ENGR 3100 Circuit Analysis
PHYS 3801K Modern Physics
PHYS 3802 Introduction to Quantum Mechanics
PHYS 3403 Biophysics
PHYS 3601 Introduction to Radiation Sciences I
PHYS 3602 Introduction to Radiation Sciences II
PHYS 3650 Radiation Exposure in the Workplace and Environment
PHYS 3660 Medical Imaging
Choose three semester hours from:
PHYS 2900 Introduction to Research in Physics
PHYS 3220 Mechanics of Deformable Bodies
PHYS 3230 Fluid Mechanics
PHYS 3312 Electromagnetism
PHYS 3400 Chemical Thermodynamics
PHYS 3500 Diffraction and Crystallography
PHYS 4991 Advanced Research in Physics
Choose three semester hours from:
PHYS 4900 Independent Study in Physics
PHYS 4950 Special Topics in Physics
PHYS 4960 Physics Internship

C.  Related Field Courses .................................................................................. 23 hours
CHEM 1211 Principles of Chemistry I (and lab)
CHEM 1212 Principles of Chemistry II (and lab)
MATH 3411 Differential Equations
Twelve semester hours of related field electives approved by the physics faculty.
D. Electives .................................................................................................................. 7 hours
  Upper-division courses (6 semester hours)
  Free elective (1 semester hour)

Total Semester Hours ........................................... 124 hours

E. Exit Exam

Rationale: As a result of program review the physics program has concluded that the program should seek to become more attractive than just being able to offer the traditional applied physics major. We see this as an opportunity to offer specialized tracks in Robotics and Mechatronics and Health Physics.

The Robotics and Mechatronics track would prepare the graduate the skills from not only the world of physics but from engineering and computer science to be capable of understanding the processes of measurement and control that are being utilized in industry and manufacture. This would require the creation of six new physics courses. However, three of these courses are being created to cross-list pre-existing one CSCI and two ENGR courses as equivalent to physics courses in the physics major field. This is being done by consultation and agreement with CSCI and ENGR programs.

The Health Physics Track is being created to be in line with Armstrong’s stated mission as being the regional health education institution in the USG system. This track would teach its graduate skills needed to either enter graduate school in programs such as a biophysics or to pursue a career in policy design/decisions at laboratories and health facilities. This would require the creation of five new physics courses. However, one of these courses would be a cross-listing with a pre-existing BCHM course as equivalent to the course in the physics major field. This is being done by consultation and agreement with the BCHM program.
Add the following courses:

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: Yes
Maximum Number of Credit Hours: 9**
Grading Mode: Normal
Instruction Type: Laboratory

BCHM 2900 INTRODUCTION TO BIOCHEMICAL RESEARCH 0-(3-9)-(1-3)
Prerequisite: permission of the department head, declared biochemistry major.
Prerequisite or co-requisite: CHEM 1211
Faculty originated biochemical lab-based research project. Written report required.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: Yes
Maximum Number of Credit Hours: 9**
Grading Mode: Normal
Instruction Type: Laboratory

BCHM 3900 BIOCHEMICAL RESEARCH 0-(3-9)-(1-3)
Prerequisite: permission of department head, declared biochemistry major.
Prerequisite or co-requisite: CHEM 2102
Faculty originated biochemical lab-based research project. Scientific paper required.

CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: Yes
Maximum Number of Credit Hours: 9**
Grading Mode: Normal
Instruction Type: Laboratory

BCHM 4991 ADVANCED BIOCHEMICAL RESEARCH 0-(3-9)-(1-3)
Prerequisite: permission of department head, declared biochemistry major and CHEM 3801 and CHEM 3811
Prerequisite or co-requisite: BCHM 4501
Faculty-originated biochemical lab-based research project. Literature evaluation and lab investigation. Scientific paper and oral presentation to faculty.

Rationale: When developing the B.S. Biochemistry program of study, undergraduate research in biochemistry was inadvertently omitted from the program of study. These courses are in line with other research opportunities for students in our department (CHEM 2900, 3900, 4991, PHYS 2900, 4991) and our College.

Effective Term: Fall 2015

*** Recommendation to the Chemistry Curriculum Committee

CHEM 4700 ADVANCED TOPICS IN BIOCHEMISTRY 2-0-2
Prerequisites: CHEM 3801 and instructor/Department Head permission
Topics include advanced areas of study in biological chemistry and may include biocatalysis, bioinorganic chemistry, computational biochemistry, protein structure and design as well as others. Course may be repeated as topics vary.
CURCAT:
Major Department: Chemistry and Physics
Can course be repeated for additional credit: Yes
Maximum Number of Credit Hours: 6
Grading Mode: Normal
Instruction Type: Lecture

**BCHM 4700 ADVANCED TOPICS IN BIOCHEMISTRY 2-0-2**
Prerequisites: CHEM 3801 and instructor/Department Head permission
Topics include advanced areas of study in biological chemistry and may include biocatalysis, bioinorganic chemistry, computational biochemistry, protein structure and design as well as others. Course may be repeated as topics vary.

Rationale: The B.S. Biochemistry program would like to have the ability to offer advanced courses on a regular basis to supplement the core instruction give to our students. These courses would enhance the theoretical knowledge of our students and allow for faculty to teach disciplinary courses in their specialty and interest areas.

Effective Term: Fall 2015

*Modify the Program of Study – (falls in 7 hours of approved upper)*

B. Major Field Courses ........................................................................................................ 36 hours
   
   BCHM 3301 Bioanalytical Chemistry
   BCHM 3403 Biophysical Chemistry
   BCHM 3811 Introduction to Biochemical Techniques
   BCHM 3812 Advanced Biochemistry Laboratory, **BCHM 3900, BCHM 4991** or CHEM 3900 - Biochemistry
   approved
   BCHM 4811 Bioinstrumental Laboratory
   CHEM 2101/2101L Organic Chemistry I with Laboratory
   CHEM 2102/2102L Organic Chemistry II with Laboratory
   CHEM 2300 Principles of Chemical Analysis
   CHEM 3801 Biochemistry I
   CHEM 3802 Biochemistry II
   CHEM 4500 Chemistry Seminar or BCHM 4501 Biochemistry Seminar

7 hours of approved upper division chemistry or biochemistry courses. **No more than 3 hours total may be from CHEM 3900, CHEM 4991, BCHM 3900 and BCHM 4991**
Memorandum

To: Biochemistry Committee
From: W. Lynch, Chair of Biochemistry Committee
Re: Minor in Biochemistry
Date: Sept. 30, 2014

I would like to begin discussions on proposing a minor in Biochemistry. The BOR policy on minors is listed below.

A minor must contain 15 to 18 semester hours of coursework with at least 9 hours of upper-division coursework. Courses taken to satisfy Core Areas A through E may not be counted as coursework in the minor. Core Area F courses may be counted as coursework in the minor. University System institutions are required to notify the Office of Academic Programs when a new minor is established. Notification will be provided using the minor notification form (http://www.usg.edu/academic_programs/changes/). Upon notification, minors will be listed on the Office of Academic Programs website. Changes in the name of a minor should also be sent to the Office of Academic Programs.

Proposal #1:

CHEM 1211 & 1212 are used by BCHM majors in core D, so they cannot count.

Required:
- CHEM 2101, 2101L, 2102 & 2102L (8 hours total)
- CHEM 3801, Biochemistry I (3 hours of upper division)
- CHEM 3802, Biochemistry II (3 hours of upper division)
- *3 additional hours of BCHM courses at the 3000 or 4000 level

This would place us at 17 hours (which meets the requirement) and 9 hours of upper division coursework (which meets the requirement). We cannot require BCHM 3811 because that would require CHEM 2300 to be taken which would put us over the 18 h cap. A student could take BCHM 3811 and count it (per *), but we cannot require it.

A student could finish this with 2 courses of BCHM 4700, or a combination of BCHM 3900, 4991. I do not think we will need to put a CHEM 4xxx in there because any CHEM course with a biochemistry emphasis will be cross listed.
Attachment #3

Department of Chemistry and Physics – Course Release Guidelines for Undergraduate Research Credit

Undergraduate research is an integral/high-impact activity within the Department of Chemistry and Physics. This is reflected in the current College of Science and Technology Workload Document (Approved November 2013 and outlined in appendix A1 of this document).

As such, prioritization for receiving workload reduction, due to accumulated hours of research credit for supervising undergraduates, should be established. It is important for faculty to note that workload is an administrative decision, implying that any reduction from the standard teaching of 12 contact hour average is at the discretion of the Department Head. It is not simply assumed that if you accumulate the requisite hours that you will automatically receive a workload reduction.

The requirements for a workload reduction due to accumulating 15 student credit hours are completion of one of the following expectations prior to a course release

1. A recent publication or accepted manuscript which includes undergraduate research students as co-authors and is research primarily conducted at Armstrong.
2. An externally funded grant which positively impacts the program and/or our student success.

Caveats:

a. Faculty can “bank” externally funded grants and publications towards future course reductions.
b. Faculty in their first two years of teaching at Armstrong can get a one-time waiver of the publication/grant requirement listed in 1 and 2 above.
c. An expected outcome of a course release is an external submission of either a full grant proposal or a manuscript for peer review.

Will Lynch
(Sept. 12, 2014)
Appendix A

- Course releases granted as a result of undergraduate research or independent study hours

Faculty in CST are encouraged to engage in scholarly pursuits with their students. Programs in CST will count undergraduate research supervision in overall workload by a banking mechanism. The hours are banked at a rate of 5:1; when a faculty member has supervised five registered credit hours of undergraduate research, this equates to one contact hour of release time. A faculty member who has supervised any combination of students registered for 1, 2 or 3 credit hours of research that adds up to a total of 15 credit hours would therefore be eligible for a 3-contact-hour reduction in a subsequent semester.

Banking course release hours is subject to the following rules:

1.) The course releases are limited to one three contact hour reduction in a semester (i.e. faculty cannot bank 12 contact hours and take off an entire semester).
2.) Because each department has a different name for their research courses, the courses that count toward these banked research hours must be approved by the Dean’s office in consultation with the department head. A list of qualifying courses and numbers must be on file in the Dean’s office to allow for tracking and checking of the banked hours.
3.) The faculty member must be the instructor of record in SHIP to accumulate hours and the faculty must produce and provide to the department head a clear syllabus that outlines the requirements of the research course and the student’s research project.
4.) Hours banked must be submitted to the Dean’s office at the end of each semester by the Department Head. The Department Head must confirm with the faculty member that the student completed the course (i.e. received a grade; a grade other than W or WF) and Department must also develop a mechanism to assure that the student-faculty collaboration produced a measurable output (e.g. presentation, paper etc. as defined in the student’s course syllabus).
5.) Both Department Heads and Faculty should retain records of their independent study and undergraduate research hours for confirmation.
6.) When requesting the release based on banked hours, faculty must submit a request to the department head that indicates the work product from the research activity (conference proceedings, manuscripts etc.) and a statement on what the faculty member is planning to use the release time for. Requests will be honored only if the Department Head can adequately cover the courses with minimal impacts.
7.) Faculty may not receive overload compensation for supervision of undergraduate research students in any semester.
8.) A faculty member who receives a course release in a semester may not simultaneously receive an overload compensation for teaching an extra course in that same semester. For example, a faculty member receives a release, bringing their semester teaching load to 9 contact hours. They cannot then be assigned another course or lab to bring their load back to 12 hours and receive extra compensation for that teaching duty.
9.) Release hours are banked over a 5 year rolling period. Faculty may accumulate research supervision credits beginning with the fall 2013 semester. No credits for previous student supervision will be given.

- **Other**

Other situations may be considered for course release provided that there is adequate coverage for courses. These will be considered on a case-by-case basis and require the approval of the Dean. In most cases, the Provost will need to approve these releases. The Department Head will work with the Dean to determine whether the release should be granted. Releases must be requested each semester as approvals do not carry over.

For releases where the faculty member requests time to work on a specific project, the faculty member must request the release from his/her Department Head and provide documentation of the work to be accomplished. The burden of proof is on the faculty member to show that this work is “above” the amount of time available to the faculty member as part of his/her regular scholarly and service pursuits (i.e. more than the 15 total workload hours per semester). A final report of the work must be submitted to the Dean’s office.

Other types of releases may be granted under special circumstances, in consultation with the Dean’s office. In general, no more than 1-2 releases of this type will be granted in the entire College each semester. Some possible examples (not inclusive):

- Serving as a PI on a grant where course releases have not been directly requested but it is judged at a later time to require work during the academic year (i.e. PI or Co-PI is no longer at AASU)
- Serving as an editor of a national journal with significant responsibilities
The Department of Chemistry and Physics supports the Mission Statement of Armstrong State University and the Philosophy and Goals of the College of Science and Technology, in accordance with University regulations as outlined in the Armstrong State University Faculty Handbook. The major focus of faculty effort and resources is on quality undergraduate instruction, and service is considered a responsibility of employment. The pursuit and support of scholarly activities are professional obligations of every tenure-track faculty member. Professional development, through participation in discipline-related activities, is expected of all faculty.

Diversity is important to a dynamic and well-rounded department. For tenure-track and tenured faculty members, quality undergraduate teaching is paramount, and the individual faculty member may choose how to allocate resources between scholarship and service providing that satisfactory performance is achieved in all areas. Activity in both scholarship and service is required, and in matters of promotion, scholarship shall be given more weight than service. In consultation with the department head, faculty members may decide the focus of their activities within the long-range needs of the department, college and university.

The following are the categories of full-time faculty members. Tenure-Track faculty include Assistant Professors, Associate Professors, and Professors. These faculty have professional obligations of teaching, scholarship, service and professional development. Lecturers and Senior Lecturers are instructional faculty who are not eligible for tenure. Their appointments include teaching, service and professional development obligations. Employees who are hired as Limited Term Faculty have the title of Instructor.

I. Suggested Professional Activities

Following is the suggested professional activities list developed by the department to aid in the evaluation of teaching, scholarship, service and professional development activities. These activities are in accordance with those outlined in the current version of the Armstrong State University Faculty Handbook (105.2.3 Guidelines for Faculty Evaluation) Guidelines for Tenure and Promotion as well as the College of Science and Technology Guidelines for Retention, Pre-Tenure Review, Promotion, Tenure and Post-Tenure Review (here after referred to as CST Guidelines). This list is an evolving entity, and presents representative items in general order of importance. It is by no means intended to be comprehensive. Categories are ranked according to the workload and resources required for activities within each area. Evaluation procedures will provide greater reward for success in higher categories and take into account total workloads of individual faculty members.

I.A. TEACHING
Teaching effectiveness will be the most important single factor in all evaluations. Teaching includes all work that involves the use of a faculty member’s expertise to communicate a subject
matter to students. It may, therefore, include traditional lecturing in the classroom, supervision and training in a laboratory or clinical setting, nontraditional communication of a discipline, the collecting and developing of subject materials for communication to students, the guidance of students in independent study and research, and academic advising. A faculty member’s command of the subject matter, motivation of and relationship to students, testing and grading practices, and overall fulfillment of teaching responsibilities are primary characteristics to be considered in the evaluation of teaching. The department recognizes and encourages faculty consider but not limit their activities to the indicators of teaching effectiveness as outlined in the Evaluation of Teaching Effectiveness (2.2.2) contained in the CST Guidelines.

Evaluation of teaching will be carried out using the Guidelines for Evaluation (2.2.3) outlined in the CST Guidelines, other related survey methods, and an evaluation of class materials such as tests, syllabi, handouts, etc. Academic advisement is also an important teaching activity, therefore participation in advisement will be considered in the evaluation process.

I.B. SCHOLARSHIP
Scholarship involves the use of a faculty member’s expertise as a scholar or artist. It includes work that adds to the subject matter of a discipline and work that increases the expertise of a faculty member as a professional. Research and publications are encouraged by the university; the pursuit and support of scholarly activities, consistent with the role of the institution, are professional obligations of every tenure-track faculty member. In the judgment of the department, scholarship must involve peer review.

Scholarship for tenure or promotion requires accomplishments from the following categories:

Category I
1. Publishing a book in your professional field
2. Writing a chapter for a book in your professional field
3. Publishing a discipline-related article in a refereed journal
4. Developing and submitting an external proposal which is funded

Category II
1. Presenting a discipline-related paper at a national, regional or international meeting or conference
2. Serving as an editor or referee for a professional journal
3. Reviewing a discipline-related article or book
4. Developing and submitting an internal proposal which is funded
5. Judging proposals for grant awards
6. Conducting a discipline-related workshop
7. Serving on a panel at a state, national or international meeting or conference
8. Publishing a discipline-related article in a non-refereed journal
9. Presenting a discipline-related work in a local or regional magazine
10. Submitting an external proposal which is not funded

Category III
1. Attending a discipline-related research-related workshop or presentation
2. Attending a sectional, national or international meeting or conference
3. Submitting an internal proposal which is not funded
4. Presenting or authoring a discipline-related paper at a state or local meeting or conference
5. Presenting a general, college or departmental lecture (including Faculty Lecture Series)

I.C. SERVICE
Service includes all work that involves the use of a faculty member’s academic status or professional expertise to benefit the university, the community or the profession. The essential element of service is that it involves contributions associated with a faculty member’s established status in a discipline and at the university. Unless otherwise stipulated in a faculty member’s job description, service is considered a responsibility of employment and consequently subject to evaluation.

Service for tenure or promotion requires accomplishments from the following categories:

Category I
1. Maintaining instrumentation
2. Serving in a university-wide advisory capacity
3. Coordinating Departmental outreach activities
4. Serving as consultant to a school, university, organization or industry
5. Serving as an officer or committee chair for a professional society

Category II
1. Serving as faculty advisor for a student organization
2. Regular service in the Advisement Center or other advisement programs
3. Organizing university functions
4. Chairing a university committee
5. Participating in a Departmental outreach activity
6. Serving on a committee of a professional organization

Category III
1. Speaking to a school class on a discipline-related topic
2. Chairing a departmental committee
3. Supervision of students in support of the departmental programs

Category IV
1. Serving on a university or departmental committee
2. Serving as liaison between Armstrong and community organizations
3. Judging science fairs and other competitions

I.D. PROFESSIONAL DEVELOPMENT
Professional development includes strategic learning and services that increase individual and institutional effectiveness in support of the university and the University System of Georgia.

1. Attending presentations
2. Workshops
3. Post-doctoral training
4. Attaining additional degrees
5. Continuing education
6. Training sessions
7. Seminars on matters pertaining to the application of disciplinary knowledge and institutional effectiveness.

II. Departmental Faculty Review Procedures

The system for departmental evaluation adopted by the Department of Chemistry and Physics consists of two parts: a review by department faculty and a faculty evaluation instrument. A departmental committee will conduct evaluations required for retention (non-tenured retention), pre-tenure, tenure, promotion, and post-tenure review recommendations. The Department of Chemistry and Physics is committed to high quality teaching effectiveness as the highest priority of the faculty, the department supports Peer Review of Instruction (2.2.4.3) as outlined in the CST Guidelines. The faculty evaluation instrument is attached at the end of this document. Guidelines for portfolio content are found in the CST Guidelines Portfolio Contents (3.4.9). The following outlines the departmental faculty review process.

II.A. For all department faculty members being considered for retention (non-tenured retention):

1. Two faculty mentors are assigned annually by agreement between the faculty member, two faculty mentors and Head to conduct a Peer review of instruction for mentoring as outlined in 2.2.4.3.a of the CST Guidelines. The evaluation instrument is attached and may be included in the portfolio.

2. A departmental committee will conduct the evaluation.

3. All full-time tenured and tenure-track faculty (excluding the department head) will participate in these evaluations.

4. Scheduling of these evaluations will be done by the department head, in a timely manner consistent with the annual academic calendar.

II.B. For all department faculty members being considered for tenure:

1. Two faculty mentors are assigned during the academic year of application by agreement between the faculty member, mentors and Head to conduct a Peer review of instruction for mentoring as outlined in 2.2.4.3.a of the CST Guidelines. The evaluation instrument is attached and may be included in the portfolio.

2. A departmental committee will conduct the evaluation.

3. All full-time, tenured department faculty (excluding the department head) will participate in these evaluations.
4. Scheduling will be done by the department head. The evaluation must begin at least one calendar month prior to the due date for the departmental recommendation for tenure.

II.C. For all department faculty members being considered for promotion:

1. Two faculty mentors are assigned during the academic year of application by agreement between the faculty member, mentors and Head to conduct a Peer review of instruction for mentoring as outlined in 2.2.4.3.a of the CST Guidelines. The evaluation instrument is attached and may be included in the portfolio.

2. A departmental committee will conduct the evaluation.

3. All full-time, tenured department faculty at or above the level of promotion being considered (excluding the department head) will participate in these evaluations for tenured and tenure-track promotion applicants. All full-time, tenured department faculty (excluding the department head) as well as senior lecturers will participate in the evaluations of lecturers applying for promotion to senior lecturer.

4. Scheduling will be done by the department head. The evaluation must begin at least one calendar month prior to the due date for the departmental recommendation for promotion.

II.D. For all department tenured faculty – post-tenure review:

1. Two faculty mentors are assigned during the academic year of application by agreement between the faculty member, mentors and Head to conduct a Peer review of instruction for mentoring as outlined in 2.2.4.3.a of the CST Guidelines. The evaluation instrument is attached and may be included in the portfolio.

2. A departmental committee will conduct the evaluation.

3. All full-time, tenured department faculty (excluding the department head) will participate in these evaluations.

4. Scheduling will be done by the department head, in a timely manner consistent with the annual academic calendar, and as outlined in the Faculty Handbook.

5. The faculty member to be evaluated should be notified at the beginning of the academic year during which the evaluation is to be conducted.

II.E. For all senior lecturers – 5 year review:
1. Two faculty mentors are assigned during the academic year of application by agreement between the faculty member, mentors and Head to conduct a Peer review of instruction for mentoring as outlined in 2.2.4.3.a of the CST Guidelines. The evaluation instrument is attached and may be included in the portfolio.

2. A departmental committee will conduct the evaluation.

3. All full-time, senior lecturers and tenured department faculty (excluding the department head) will participate in these evaluations.

4. Scheduling will be done by the department head, in a timely manner consistent with the annual academic calendar, and as outlined in the Faculty Handbook.

5. The faculty member to be evaluated should be notified at the beginning of the academic year during which the evaluation is to be conducted.

III. Peer Review of Instruction for Mentoring Procedures

A. The department head, faculty member under evaluation and mentor all agree on the assignment of the mentor.

B. The mentor shall contact the faculty member and agree on a two week window for observation of both classroom and laboratory (in the event a faculty member under review does not have a laboratory that semester, only a classroom visit will occur).

C. The mentor shall visit the faculty member’s classroom and laboratory and perform a mentoring evaluation using the departmental instrument (College of Science and Technology Peer Review of Instruction for Mentoring Form).

D. The mentor and faculty member shall meet to review the outcomes within two weeks of the visit.

E. The faculty member shall receive the original evaluative summary for their records and may choose to include this document in their portfolio.

IV. Peer Review of Instruction for Evaluation Procedures

A. The department head shall contact the faculty member and agree on a two week window for observation of both classroom and laboratory (in the event a faculty member under review does not have a laboratory that semester, only a classroom visit will occur).
B. The department head shall visit the faculty member’s classroom and laboratory and perform a mentoring evaluation using the departmental instrument (College of Science and Technology Peer Review of Instruction for Mentoring Form).

C. The department head and faculty member shall meet to review the outcomes within two weeks of the visit.

D. The faculty member shall receive the original evaluative summary for their records, a copy will be placed in the faculty members permanent record and the document will be included in their portfolio.

V. Committee Procedures

A. The department head shall appoint a chair for the committee.

B. Records of performance in teaching, scholarship, service and professional development for the faculty member being evaluated must be made available for review by the committee prior to each evaluation. These documents should include, but are not limited to a current CV, all of the Annual Professional Activities Reports, all of the Annual Faculty Evaluations, all of the annual FACE summaries for the period being evaluated, and all previous tenure, promotion, and retention memoranda. Complete instructions as to the content of the portfolio required by the College of Science and Technology are available from the Office of the Dean.

C. The committee shall review the portfolio to ensure its completeness.

D. Committee members should read the files of the respective applicants. Files are available in the departmental office and may be taken to the conference room for reading. In the interest of speed and confidentiality, packets may not be taken to faculty offices.

E. A Faculty Evaluation Form should be used to record the assessment of the files and any information or opinions pertinent to the decision making process.

F. The committee will meet twice to discuss the strengths and weaknesses of the applicants. In all cases, discussion should be conducted in a collegial manner. The goal of all retention, tenure, promotion and post-tenure procedures is to improve the department.

G. During the second meeting, discussion of applications will be completed and a vote will take place. Votes will be conducted by secret ballot supplied by the department head. There will be separate ballots for each promotion and tenure vote. These will be tabulated by the committee, sealed in an envelope, and submitted with the recommendation of the committee.

H. The chair of the Retention, Tenure, Promotion, Post-Tenure Review and/or 5-year Senior Lecturer Review Committee will submit a memorandum detailing the outcome of the vote and a short rationale for the result. This memorandum should be signed by all committee
members. The committee’s memorandum shall be attached to the application and made available to the applicant. Should the committee be unable to agree on an acceptable memorandum then the majority of committee members will submit a signed memorandum and a minority memorandum may also be submitted. In addition, all committee members have the right to submit memoranda to the department head about the results of the proceedings.

I. All committee recommendations are due to the department head two weeks before the evaluation results are due in the office of the Dean of Science and Technology.
Faculty Evaluation Form  
Department of Chemistry and Physics

Evaluation for ____________________________  Date __________

In consideration of (check one)  
Retention ____  
Tenure ____

Promotion to:
  Assistant Professor ____
  Associate Professor ____
  Professor ____
  Senior Lecturer ____
Post-tenure Review ____
5-Year Senior Lecturer Review ____

Rating Scale

Lowest  [ 1 ] Severely Deficient
        [ 2 ] Below Average
        [ 3 ] Average
        [ 4 ] Above Average
Highest [ 5 ] Outstanding

1. TEACHING: How do you evaluate this colleague with regard to teaching? Does (s)he effectively use her/his expertise to communicate the subject matter to students? How do you evaluate the command of subject matter, testing and grading practices, and overall fulfillment of teaching responsibilities for this colleague? Does the faculty member use student-based outcomes to evaluate her/his teaching effectiveness and guide her/his professional growth? Is the faculty member engaged in disciplinary activities to maintain currency in the discipline to support high quality teaching?

Comments:

2. STUDENT INVOLVEMENT: How do you assess the extent, nature, and value of this colleague’s involvement with students of Armstrong State University? Is (s)he considerate and non-abrasive in relations with students?

Comments:
3. SCHOLARSHIP: Does (s)he participate in the peer review process in her/his academic area of expertise which includes demonstrated outcomes (not required of Lecturers and Senior Lecturers)?

Comments:

4. PROFESSIONAL DEVELOPMENT: Does the faculty member demonstrate a commitment to professional growth and development manifested by interaction and collaboration with colleagues with common interests on campus and in the professional community at large?

Comments:

5. SERVICE TO UNIVERSITY AND COMMUNITY: How do you evaluate this colleague with regard to professional service (both within the University and in the community at large) and “reputation value” to the University and Department?

Comments:

6. INTEREST AND INITIATIVE: Does this colleague participate actively and effectively in the identification, discussion, and resolution of problems and issues facing the Department, the College and the University?

Comments:
7. PROFESSIONAL BEARING: Is (s)he self-confident and fully professional and collegial in manner and appearance?
Comments:

8. DEPENDABILITY: Does (s)he willingly carry a full share of departmental duties such as committee work, and accomplish related tasks punctually, completely, and without undue prodding?
Comments:

9. VERSATILITY: To what extent is (s)he able and willing to teach a wide variety of the Department’s courses - not only in diverse areas, but also at a variety of levels?
Comments:

10. GENERAL EFFECTIVENESS: Compared to other colleagues you have known, and to generally accepted standards of the academic community, how do you appraise his/her performance in terms of value to you as a colleague and/or in terms of overall effectiveness as a member of the faculty of the University and College in general, and the Department of Chemistry and Physics in particular?
Comments: